PROJECT REVIEW REPORT

This project review report includes findings raised during Verra's review of the project specified below. The VVB must address the findings before the project request can be considered for approval by Verra. The project review report will be made publicly available on the Verra Registry. Confidential information may be provided in separate attachments.

Project ID	2940
Project Name	Global Cookstove Program (EKI – Pink City)
Review Type	Registration and Verification
Verification Period	05 December 2022 to 30 April 2023
Program(s)	VCS Program
Project Proponent	EKI Energy Services Limited Pinkcity Tourist Village Complex Private Limited.
Methodology	VMR0006 ¨*Methodology for Installation of High Efficiency Firewood Cookstoves*¨ version 1.1
VVB	LGAI Technological Center, S.A.(Applus+ Certification)
Assessment Criteria	*VCS Standard, v4.4*
Date of First Issue	05 October 2023
Date of Second Issue	30 January 2024
Date Of Third Issue	24 May 2024
Date of Forth Issue	02 July 2024
Review Conclusion	Approved

Date of Final Issue	18 October 2024

FINDINGS

#	Finding Description	VVB Response	Status
1	**Insufficient information on the local stakeholder consultation**		
	Issue The LSC was conducted in one district and not all three districts of Madhya Pradesh. It is not explained or justified how this meeting was representative of the entire population of the proposed project area. Moreover, as this group project 'may expand to other areas of India', it is unclear how local stakeholders will be engaged. Action item 1. The VVB must ensure that PP justifies how the LSC conducted is representative of the whole project area, especially since this is a grouped project that may expand to other areas of India. 2. The VVB must ensure that the project proponent justifies how the local stakeholders were engaged. Program rule(s) *VCS Joint Project Description and Monitoring Report Template v4.2, section 2.2*	**Round 1** PP Response 1. Bharwani, Dhar and Mandla are nearby districts in the southern part of Madhya Pradesh and the location of the stakeholders meeting was so selected that its easily accessible for the stakeholders from all three districts. Copy of the invitation letters were placed in common places of the target villages in all three districts along with invitation to the village heads (telephonically and personally) from all three districts to ensure participation of the stakeholders from the target areas. Also in future whenever PP will distribute the ICS in other geographical location other than current project location in future verification then PP shall conduct LSC for that location. 2. The PP explained the project goals and the benefits of using Improved Cooking Stoves (ICS) to the people involved. Public notice was also placed in common places in villages to invite local stakeholders. In the meeting, PP encouraged everyone to share their thoughts and suggestions. The meeting attendance sheet as well as the Minutes of Meeting (MoM) were recorded at the time of LSC. The related documents have already been	closed

		submitted to VVB. VVB Response As discussed during the interviews with local stakeholders who were part of the LSC conducted by the PP and the end users, it was confirmed that a meeting was held at one place for all the districts and invitation letters were sent well in advance to target villages, It was also confirmed that arrangement of to and fro transportation for the people who wanted to attend the meeting was done by the PP. VVB found this appropriate. Section 3.3.2 of joint VR/VR is revised to include the assessment of invitations for stakeholders from the complete project area. VVB accepts that current LSC is applicable for the ICS included and as a part of grouped project, LSC shall be arranged for each new area. A FAR is added in Joint VR-VR for the same.	
		Verra Response The location of the stakeholders meeting was so selected that its easily by all stakeholders in the project. The project proponent has included more details of what was discussed during the LSC. This finding is now closed, and no further response is required.	

2	**Dates of the PCP are missing**		
	Issue In section 2.4, dates when project was open on Verra website for public commenting period is missing. **Action item** The VVB must ensure that PP includes the dates when project was open for public comments is missing.	**Round 1** PP Response The project was open for public comment at Verra website between 15/04/2022 to 15/05/2022 and the information is updated under section 2.4 of the PD-MR. VVB Response VVB checked and confirmed that section 2.4 of the latest JPDMR version 05 dated 16-October-2023 is revised to include the same.	closed

	Program rule(s) *VCS Joint Project Description and Monitoring Report Template v4.2, section 2.4*	Verra Response This finding is now closed, and no further response is required.	

3	Further information and assessment on calculation of fNRB		
	Issue The f_{NRB} calculation sheet has not been submitted. As per the information provided in the project description in section 4.4 related to the ex-ante calculation of f_{NRB} it is not clear how H and RB have been calculated as per Section 3.1 and 3.2 of the TOOL30, v.04.0 and fNRB has been estimated using the most recent historical year for which data is available. Furthermore, Tool 30 version 4 requires a comparison of the fNRB achieved with those from other literature. The project proponent does not provide this comparison in the VCS joint PD/MR. It is not indicated how para. 6 b) TOOL30 has been applied for each state and has been compared the fNRB values with the recently approved projects. It is not indicated how much each of the factors in Para 13 of Tool 30 could affect the values of the fNRB achieved by the project. **Action item** 1) The VVB must ensure that project proponent submits the final version of the f_{NRB} calculation sheet.	**Round 1** PP Response 1) The final version of the fNRB calculation sheet has been submitted now. 2) Details regarding the input parameter and estimation of fNRB is included in section 5.4 of the PD with details of data vintage for all parameters. 3) The comparison of the estimated fNRB with the literature referred to under Tool 30 is included in the PD-MR (included in the response sheet also). 4) PP now included how para. 6 b) TOOL30 has been applied for each state and compared to the fNRB values with the recently approved projects in section 5.4 of Joint PD&MR 5) Para 13 of Tool 30 says "If the fNRB value is estimated at the national level", which means it primarily applies to projects estimating the fNRB at the national level. However, in the project activity, the fNRB calculation has been conducted at the state level. Consequently, the provisions outlined in para 13 of Tool 30 are not directly applicable in this context. 6) Since there are no other publicly available literature outlining the value of fNRB for the state of Madhya Pradesh therefore comparison has been presented with the value of fNRB with which ICS projects are registered under VERRA. Comparison of fNRB of the current project with other registered project activity **Project Reference** | **Geographic Area** | **f_{NRB}** Project ID- 2533 | Madhya Pradesh | Madhya Pradesh - 0.901	closed

	2) The VVB must ensure the PD includes details of how the f_{NRB} was calculated and how it complies with the provisions of TOOL30 in section 4.4 of project description. 3) The VVB must ensure the project proponent provides the comparison on the values achieved and those reported. 4) The VVB must ensure that the project proponent includes how para. 6 b) TOOL30 has been applied for each state and compared to the fNRB values with the recently approved projects. 5) The VVB must provide an assessment on the influence the factors mentioned in para 13 of Tool 30 could have on the value achieved of fNRB. 6) The VVB must ensure to provide further analysis with other relevant scientific literature. Program rule(s) *Tool 30 v4.0,* Para 6 and 13 *VCS Joint Project Description and Monitoring Report Template v4.2,* Sections 4.4 and 7.5	<table><tr><td>Project Title-Improved Cookstove Programme by SDG13 in India</td><td></td><td></td></tr><tr><td>Project ID- 2473 Project Title - Installation of High Efficient Cook Stoves by Enking International</td><td>Madhya Pradesh</td><td>Madhya Pradesh - 0.931</td></tr></table> Since the value of fNRB considered in the registered PD- MR is higher than the fNRB value estimated for the project activity (87.31%) therefore the fNRB value considered is deemed to be much more conservative VVB Response 1. PP has now submitted fNRB sheet. The values considered for calculation of fNRB are found to be sourced from appropriate documents and were found relevant to the project activity. 2. PP has now added details regarding the input parameter and estimation of fNRB is included in section 5.4 of the PD with details of data vintage for all parameters. VVB noted that in section 5.4 under heading - Estimation of total consumption of woody biomass (H), detailed calculation is provided along with the weblinks of the database used and is correct. The assessment is presented in section 3.4.6. of joint VR/VR. 3. PP has now revised PD/MR to provide the comparison of the fNRB achieved with those from other literature was checked and found appropriate. The assessment is presented in section 3.4.6. of joint VR/VR. 4. PP has now revised PD/MR to provide the comparison of the fNRB achieved with those from other projects was checked and found appropriate. The assessment is presented in section 3.4.6. of joint VR/VR. 5. Para 13 of tool 30 is applicable in the fNRB value is calculated on national level. Since PP has calculated the same at regional level, para 13 is not applicable. 6. VVB has noted that PP has estimated fNRB value in accordance with approach stipulated under Tool 30 and has presented the justification with respect to conservativeness of each value	

considered which is assessed below:

Parameter	Justification of Data Source and assessment of Influence	VVB Assessment
Fuel Wood Consumption	The fuel wood demand used for estimation of fNRB is considered from the State of Forest Report 2011 (chapter 7) published by Forest Survey of India, MoEF&CC, Govt of India. Since the referred literature is the last publicly available data source relating to fuel wood demand in the state therefore in accordance to paragraph 10 of Tool 30 older vintage data is being considered. It is in this context worthwhile to mention that 2011 value of fuel wood demand considered for estimation of fNRB is conservative as it has not accounted for the growth in demand of wood fuel linked with population growth in the state of Madhya Pradesh till 2022. Moreover, cross verification has been made to assess the wood fuel demand in the state Madhya Pradesh using alternate approach as specified under Equation 3 of the Tool 30 and the MoEF&CC estimated value of fuel wood demand for the state of Madhya Pradesh are found to be more conservative and therefore used for the estimation of the total consumption of woody biomass. The detailed estimation using	VVB confirmed that the 2011 for the state of M available for value of fu referred data is in accor the value of fuel wood different from the repo hence accepted. In view of the same, the from MoEF&CC for fue values and calculation p and found appropriate. 13.67 million https://fsi.nic.in/cover_ by the assessment tean

			alternate approach is presented in the fNRB estimation sheet.				
		Commercial Wood Consumption	The commercial wood demand used for estimation of fNRB is considered from the State of Forest Report 2011 (chapter 7) published by Forest Survey of India, MoEF&CC, Govt of India. Since the referred literature is the last publicly available data source relating to fuel wood demand in the state therefore in accordance to paragraph 10 of Tool 30 older vintage data is being considered. It is in this context worthwhile to mention that 2011 value of commercial wood demand considered for estimation of fNRB is conservative as it has not accounted for the growth in demand of commercial wood linked with population growth in the state of Madhya Pradesh till 2022.	The value of commercia most recent available p Since the state of fores available for the state c of the parameter and sa the parameter value , sa		nsumption is taker by PP as 1.149 m 2011 is the most Pradesh to conside g used by PP for es nd appropriate.
		Consumption of Bamboo and small timber	The commercial wood demand used for estimation of fNRB is considered from the State of Forest Report 2019 (chapter 10) published by Forest Survey of India, MoEF&CC, Govt of India. Since the referred literature is the last publicly available data source relating to fuel wood demand in the state therefore in accordance to paragraph 10 of Tool 30 different vintage data is being considered. As the data relates to	The value of the param recent available data by is appropriate as per the			estimated based c ate of forest report rement and hence

			official statistics of Govt of India the same is considered as most conservative.		

Renewable Biomass-

Parameter	Justification of Data Source and assessment of Influence	VVB assess
Mean Annual Increment	The mean annual increment of India Forest as published by Government of Tamil Nadu which also outlines the average value for India forest is considered. Since the value considered is the publicly available national statistics the same is considered for estimation of fNRB.	The value appropriate
Area under Forest	The data and value related to area under forest is obtained from latest State of Forest Report 2021 (chapter 13) published by Forest Survey of India, MoEF&CC, Govt of India.	Since the r of the para
Area under Non Forest Land	The data and value related to area under non-forest land is obtained from latest State of Forest Report 2021 (chapter 13) published by Forest Survey of India, MoEF&CC, Govt of India.	Since the r of the para

VVB noted that, all the input values obtained are sourced from nationally published data and is the most conservative and hence accepted.

The fNRB calculation is conducted by PP for the state of Madhya Pradesh and not on the complete country. This is in accordance with the tool which allows to choose the geographical region for estimation of the fNRB value. However, VVB noted and accept that there is not publicly available literature/ document which will be available for comparison with the value estimated and hence accepted.

Since no comparative data is available for fNRB value, PP compared the value estimated with some registered project activities. VVB noted that the value for the current project activity is the most conservative and hence accepted.

Assessment of fNRB value is presented in section 3.4.6 of JVR-VR.

Verra Response

The fNRB calculation is conducted by PP for the state of Madhya Pradesh

		and not on the complete country. The VVB noted and accept that there is not publicly available literature/ document which will be available for comparison with the value estimated and hence accepted. Since no comparative data is available for fNRB value, PP compared the value estimated with some registered project activities. VVB noted that the value for the current project activity is the most conservative and hence accepted. The project compared the RB values used in the project and those of the Bailis report and concluded that the Bailis report did not consider 17% of the wood consumption. However, this finding cannot be closed. **Round 2** <u>Issue</u> The following issue has been identified in the estimation of consumption of woody biomass 1. It is unclear how the VVB ensured that double counting is not involved when in calculating non-renewable biomass, PP has included the value of small timber collection and bamboo use by forest fringe villages which are already accounted in final estimation of energy/non-energy wood consumption value (Section 7.3.2.2 Chapter 7) The following issues have been identified in the estimation of renewable biomass 2. The document from which MAI value has been sourced is not accessible. 3. PP has considered entire reserved forest as inaccessible (Pforest,i), however as per Indian Forest conservation Act 1927 activities like lumbering, grazing and hunting are allowed with permission in Reserved forests and therefore timber and non-timber forest products can be sourced from RF. 4. PP has included trees outside RFA for renewable biomass estimation, however the MAI value applied for calculating this biomass is same as that of forest biomass.. <u>Action required</u> 1. The VVB must explain how they ensured that double counting is not involved in calculation of consumption of fuelwood and construction	

		wood in estimating non-renewable biomass consumption. 2. The VVB must ensure that the PDF file of the source of MAI applied. 3. The VVB must ensure that the project proponent explains why the entire reserved forest is considered as inaccessible (Pforest,i), when as per Indian Forest conservation Act 1927 activities like lumbering, grazing and hunting are allowed with permission in Reserved forests. 4. The VVB must ensure that the PP includes justification for using MAI forest for assessing AGB of trees outside recorded forest since as per FSI definition, areas outside RFA includes plantations on private and public land rubber, tea, coffee plantations etc which tend to have higher MAI values <u>PP Response</u> 1. PP now removed Consumption of small timber and bamboo from the Total consumption of woody biomass calculations 2. PP now provided the PDF file of the source of MAI applied. 3. As per the INDIAN FOREST ACT, 1927[1] section 26, Acts which prohibited the following in a reserved forest: a. trespasses or pastures cattle, or permits cattle to trespass b. causes any damage by negligence in felling any tree or cutting or dragging any timber. c. fells, girdles, lops, or bums any tree or strips off the bark or leaves from, or otherwise damages, the same d. clears or breaks up any land for cultivation or any other purpose. Hence, reserved forest is considered as inaccessible (Pforest,i) 4. In accordance with the "Source of data" section within Data/Parameter Table 5 of Methodological TOOL 30 "Calculation of the fraction of non-renewable Biomass," Version 04.0, which states, "if the MAI value for other land areas is not available in a country while only the MAI value for forest areas exists, the MAI value for forest areas may be used as	

[1] http://nbaindia.org/uploaded/Biodiversityindia/Legal/3.%20Indian%20forest%20act.pdf

		the MAI value for other land areas with due justification," the Project Proponent (PP) has utilized the MAI value for forest areas, available for India in m3/ha/yr unit, as the MAI value for other land areas is unavailable for India. Following are the changes in the fNRB sheet: • In the row 21 of 'consumption of woody biomass' tab, For calculating the roundwood equivalent 30% conversion loss was considered in Commercial Wood Consumption. • Consumption of small timber and bamboo now removed from the calculation of consumption of woody biomass. • In tab 'Renewable Biomass', calculation mistake (Wrong cell selection) is now corrected for $MAIforest,i$ & $MAIother,i$. While the calculated fNRB value of 0.8934 complies with the PRR comments, a more conservative approach aligns better with established fNRB values. Recent similar projects (VCS 2942 & VCS 2944) by the same PP adopted a value of 0.892. Therefore, to ensure consistency and conservatism, the project adopts the 0.892 value for fNRB, applied to both ex-ante and actual emission reduction calculations. This adjustment is documented in the Joint PDMR.. <u>VVB response:</u> 1. VVB accepts that there was lapse. PP has now corrected the fRNB calculation by removing consumption of small timber and bamboo from total consumption of woody biomass calculation which is checked and confirmed. This ensures that no double counting occurs in calculation of consumption of fuelwood and construction wood in estimating non-renewable biomass consumption. 2. The pdf file of the source of MAI applied is being submitted now. 3. VVB has checked the copy of Indian Forest conservation Act, 1927. The section 26 of the same prohibits activities such as lumbering, grazing and hunting within the Reserved forests. 4. VVB noted that areas outside RFA includes plantations on private and public land rubber, tea, coffee plantations etc which tend to have higher MAI values is appropriate however, MAI value for other land areas is unavailable for India. Hence as per tool 30 guidance, PP has used MIA	

		value for forest areas only. VVB has further noted that with revised values, the fNRB value revises to 0.8934. The reason for this revision are as follows which are checked and confirmed based on the submitted fNRB worksheet: • In the row 21 of 'consumption of woody biomass' tab, For calculating the roundwood equivalent 30% conversion loss was considered in Commercial Wood Consumption. • Consumption of small timber and bamboo is now removed from the calculation of consumption of woody biomass. • In tab 'Renewable Biomass', calculation mistake (Wrong cell selection) is now corrected for $MAIforest,i$ & $MAIother,i$. VVB noted the calculated fNRB value of 0.8934 complies with the PRR comments and correct calculation approach. PP has already registered projects with VERRA (VCS 2942 & VCS 2944) which has an approved value of 0.8920. Therefore, to ensure consistency and ensure principle of conservativeness, the project has now adopts 0.8920 as the value for fNRB. This approach is found acceptable by the VVB. PP has revised PD-MR and VVB has revised FVR for the value of fNRB accordingly. <u>Verra Response</u> The VVB responses have been assessed and some issues raised were addressed while additional information is still required for others as explained below. This finding cannot be closed. **Round 3** <u>Issue</u> 1) The VVB has checked and confirmed that the project proponent has corrected the fRNB calculation by removing consumption of small timber and bamboo from total consumption of woody biomass calculation. Closed 2) The pdf file of the source of MAI applied has not been included as part	

		of the documents shared for this project. However, the link included is similar to other projects submitted and the document submitted in relation indicates that the MAI value is sourced from a 1997 FAO document. The review team noted that as per Tool 30, Data/Parameter Table 5, vintage of MAI data shall not be before year 2000. Moreover, as per same table, if national studies or government data or official statistics are used, PP has to provide comparison of the considered value with FAO and IPCC defaults and provide justification of PP has not provided any such comparison. **The finding is therefore still open.** 3) The VVB confirms that as per the Indian Forest conservation Act, 1927, Section 26, activities such as lumbering, grazing and hunting are prohibited within the Reserved forests hence entire reserved forest is considered as inaccessible (Pforest,i). However, Indian Forest Act 1927 chapter III, Section 32, which includes amongst other things that the government may make rules to regulate (a)the cutting, sawing, conversion and removal of trees and timber, and the collection, manufacture and removal of forest-produce, from protected forests;(b)the granting of licenses to the inhabitants of towns and villages in the vicinity of protected forests to take trees, timber or other forest-produce for their own use, and the production and return of such licenses by such persons. It is therefore unclear how the VVB verified that entire protected forest can be considered inaccessible for supply of wood and timber. **The finding is therefore still open.** 4) VVB noted that areas outside RFA includes plantations on private and public land rubber, tea, coffee plantations etc which tend to have higher MAI values is appropriate however, MAI value for other land areas is unavailable for India. However, the VVB does not mention any other sources that were looked into to conclude the approach taken for this data parameter. **This finding is still open** <u>Action required</u> 1) The VVB must ensure that the data sources for MAI are in line with the data requirements of the applied Tool 30. 2) The VVB must justify why protected forests cannot be considered as potential sources of timber and firewood supply. 3) The VVB must provide other data sources checked to conclude on the approach taken for determining MAI for other lands besides	

		those provided by the project proponent VVB Response VVB would like to present response to point no. 02 regarding MAI source in pointwise manner as below: **a) Inclusion of MAI Source PDF:** • The PDF file of the source for the Mean Annual Increment (MAI) applied has now been included in the documents shared for this project. **b) Clarification on Cited Information:** • VVB has checked and confirmed that the information cited using 1997 FAO document is, "*The net annual increment of growing stock from all sources (public and private) was assessed to be 127 million cubic meters in 1994, and the actual production was estimated to be 294 million cubic meters"* which pertains to a general assessment and not specifically to the MAI value used. Rather in the same paragraph, the report mentions that. "*The mean annual increment (MAI) of India's forests is meagre of 0.5 m3/hectare/year compared to the world average of about 2.1 m3/ha/year."* **c) Compliance with TOOL 30 Requirements**: • VVB has checked and confirmed that as per Table 5 of TOOL 30, the "Source of data" option (d) is utilized, i.e., "National studies or government data or official statistics." The document reports data after the year 2015 which satisfies the requirement of the tool para 10 of the tool 30 i .e. the data vintage shall not be before the year 2000. • VVB has at length discussed and noted that, a comparison of values with FAO and IPCC default is inappropriate because, i. The Global Forest Resources Assessment 2000 by FAO (Table 14[2]) lists only the percentage distribution of forest types	

[2] FAO Global Forest Resources Assessment 2000 by the FAO for "Distribution of total forest area by ecological zone" (Table 14)

by country and does not provide sufficient data for effective conclusions about MAI, making it unsuitable for comparison.

ii. The MAI values listed for above-ground biomass growth rates in the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories[3] (Above-ground biomass growth rates for different ecological zones) pertain to the Asia region as a whole, rather than specific to India. Hence, a direct comparison with the source document used is not correct.

d) **Confirmation with Recently Registered Project Activity:**

- VVB has checked registered project with VCS and GS and noted that following registered projects have also considered same MAI_{forest} value, affirming the consistency and reliability of PP's data source.

Registry	Registry ID	Weblink	MAI values considered
VCS	2983	https://registry.verra.org/app/projectDetail/VCS/2983	$MAI_{forest,i}$ – 0.5 $MAI_{other,i}$ – not considered
GS	11539	GSF Registry (goldstandard.org)	$MAI_{forest,i}$ – 0.5 $MAI_{other,i}$ – not considered
GS	11427	GSF Registry (goldstandard.org)	$MAI_{forest,i}$ – 0.5 $MAI_{other,i}$ – not considered
GS	11426	GSF Registry (goldstandard.org)	$MAI_{forest,i}$ – 0.5 $MAI_{other,i}$ – not considered
GS	11068	GSF Registry (goldstandard.org)	$MAI_{forest,i}$ – 0.5 $MAI_{other,i}$ – 0.5

[3] https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch04_Forest%20Land.pdf

		The MAI_{forest} value considered by all the above projects is 0.5. The source document for this value is Indian government data source[4] thus found appropriate. In conclusion, the data sources used by PP for MAI are in full compliance with the data requirements of the applied TOOL 30. 3) Regarding the classification of protected forests as inaccessible for the supply of wood and timber, VVB would like to present the following information. **a) Data Source and Classification:** The data source used[5] for calculating the value of $P_{forest,i}$ bifurcates the total forest cover into three categories: Very Dense Forest (VDF), Moderately Dense Forest (MDF), and Open Forest (OF). While calculating Pforest,i, PP has conservatively considered the Open Forest Area in both Reserve Forests and Protected Forests as accessible. This is evident in the subitted fNRB workbook - Renewable Biomass worksheet – cell C15. This is despite the previous confirmation that the entire Reserve Forest Area is completely inaccessible and hence accepted. **b) Wood Extraction Permissions:** Chapter III, Section 32 of the Indian Forest Act, 1927, permits granting licenses to local inhabitants for extracting trees, timber, or other forest produce for personal use from protected forests. However, these activities are highly regulated and typically restricted to the peripheral areas of the forest. VVB based on regional expertise confirmed that the interior parts of protected forests are often characterized by difficult terrain and dense vegetation, making them less accessible to the general population.	

[4] https://moef.gov.in/wp-content/uploads/2019/06/Pacific.pdf

[5] chapter-13.pdf (fsi.nic.in), Refer: page 369

		Additionally, there is a significant risk of attacks by wild animals in these regions. Consequently, local inhabitants generally prefer collecting forest produce from the more accessible peripheral areas. However, as demonstrated below, PP has considered both the approaches and considered the conservative value of fNRB which in the current case remains the same i .e. 89.34% and hence acceptable. **c) Alternative Calculation Approach:** Despite the conservative approach mentioned above, PP recalculated the $P_{forest,i}$ value considering the entire Reserve Forest as inaccessible and the Protected Forest as completely accessible to address the registry's concern as shown below. This led to a higher value of $P_{forest,i}$ and fNRB. **Data Used:** Recorded Forest Area: 9,468,900 ha Reserved Forest: 6,188,600 ha Protected Forest: 3,109,800 ha **Percentages:** % of Recorded Forest Area under Reserved Forest: 65.36% % of Recorded Forest Area under Protected Forest: 32.84% Total Forest Cover (Fforest,i): 6,477,200 ha Area under open forest: 2,832,600 ha **Original Calculation:** Considering non-Accessible Area (VDF and MDF) for both Reserved Forest and Protected Forest: $P_{forest,i}$ = (Total Forest Cover - Area under open forest) * (% of Recorded Forest Area under Reserved Forest + % of Recorded Forest Area under Protected Forest) $P_{forest,i}$ = (6,477,200 - 2,832,600) * (65.36% + 32.84%) = 3,578,974.2 ha RB = 1.62 million tonnes NRB = 13.54 million tonnes fNRB = 89.34%	

		Calculation with considering protected forest as zero: Considering only Reserved Forest (VDF, MDF, and OF) and taking Protected Forest as Zero: $P_{forest,i}$ = (Total Forest Cover * % of Recorded Forest Area under Reserved Forest) + (0 * Total Forest Cover) $P_{forest,i}$ = (6,477,200 * 65.36%) + (0 * 6,477,200) = 4,233,311 ha RB = 1.4 million tonnes NRB = 13.76 million tonnes fNRB = 90.75% Revised fNRB workbook – worksheet (Renewable biomass) now provides comparison of the values for $P_{forest,i}$ with both of the above calculations and minimal value of the same is chosen for further calculation. Footnote 17 is added to FVR with regard to the same. **Conclusion:** Thus, VVB noted that with the approach selected by PP i. e. consideration of the inaccessible part of the total forest cover while calculating the $P_{forest,i}$ value has ensured that PP's calculation remain robust and aligned with the requirements of the TOOL 30 and hence accepted. 4) About cross checking the values for conclusion of the approach taken by PP. **a) Use of MAI Values for Other Land Areas:** In line with Table 5 of TOOL 30, it is specified that "if the MAI value for other land areas is not available in a country while only the MAI value for forest areas exists, the MAI value for forest areas may be used as the MAI value for other land areas." For India, MAI value for other land areas is not available, hence PP has considered the same MAI value for both MAIforest,i and MAIother,i. **b) QA/QC Procedure and Comparison with FAO and IPCC Defaults:** As part of the QA/QC procedure in line with Table 5 of TOOL 30, a comparison of MAI values was attempted with FAO and IPCC defaults. The following observations were made: • The Global Forest Resources Assessment 2000 by FAO (Table 14) provides only the percentage distribution of forest types by country and	

		does not offer sufficient data for effective conclusions about MAI, rendering it unsuitable for comparison. • The MAI values listed for above-ground biomass growth rates in the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories pertain to the Asia region as a whole and are not specific to India. Therefore, a direct comparison with Indian government data was not appropriate. **Conclusion**: Based on the above points, VVB concluded that the approach taken for determining MAI for other lands by the project proponent is in line with the requirements of TOOL 30. The use of the same MAI value for both forest and other land areas is justified due to the unavailability of specific MAI data for other land areas in India, and the methodology is supported by the precedent set in other recently registered projects as presented in table above. **Verra Response** 1) The VVB has clarified how the MAI value used meets the requirement of Tool 30. The document used refers to the MAI value of FAO document 1997 to traingulate the reported MAI value, however these are not the values used in the calculated. The value of 0.5 that is quoted by the document is used. This document is published after 2000, which meets Tool 30 data sources requirements. However, the reference document provided by VVB to establish the value of MAI under point (d) is not accessible. Moreover, the review team noted that the value used in Gold Standard projects 11539, 11427, 11426 and 11068 is 0.5 t/ha/yr whereas project proponent has used a value of 0.5 m3/ha/yr. **This finding remains open.** 2) The VVB has justified why protected areas are considered inaccessible areas, including how accessible forest is defined, and the regulation of permits. The recalculation Considering non-Accessible Area (VDF and MDF) for both Reserved Forest and Protected Forest: vs Considering only Reserved Forest (VDF, MDF, and OF) and taking Protected Forest as Zero: indicates that the former is more conservative. **This finding is now closed, and no further response is required.**	

		3) The VVB has provided other data sources checked to conclude on the approach taken for determining MAI for other lands including IPCC and FAo default values. This finding is now closed, and no further response is required. **Action required** 1) The VVB must ensure that the project proponent submits GS reference document 2) The value used in referenced projects is more conservative as compared to the value used by project proponent and more recent when compared with the reference document used by the project proponent. The VVB therefore needs to justify how the value of 0.5m3/ha/yr used by project proponent meets the requirements of principles of conservativeness as listed under section 2.2.1 of VCS Standard v 4.5. **PP Response** 1) We request VERRA to ignore the GS reference projects which were initially cited in the PRR Round 3 response, which used the same MAI value of 0.5 cubic meters per hectare per year. Since, the conversion from "cubic meters per hectare per year" to "tonnes per hectare per year" was not clearly documented in these projects, leading to potential confusion. 2) The project proponent used an MAI value of 0.5 cubic meters per hectare per year, consistent with the value used in other projects, such as VCS 2983, where a wood density of 0.56 T/m³ (sourced from FAO) was applied to convert this into tonnes per hectare per year. This conversion is detailed on page 23 of the VCS 2983 project document (PD).	

RB: Quantity of renewable biomass that is available on a sustainable basis in the applicable area in the relevant period	RB	tonnes	1.067	"Calculated as per tool 30 equation 4 RB= MAI Forest * Fforest,i =(0.5x3812000x0.56)/10^6=1.067 https://www.fao.org/3/w4095e/w4095e0c.htm (Appendix 1 - List of wood densities for tree species from tropical America, Africa, and Asia. (fao.org))

		In contrast, our project applied a different source for the same MAI value and used a wood density of 0.645 T/m³ for forests and 0.644 T/m³ for trees outside forests, as referenced in the Forest Survey of India (FSI) report (fsi.nic.in/isfr-2021/chapter-13.pdf). Furthermore, a recently registered project (Registration Date: 06/08/2024) VCS 3151[6], also utilized an MAI value of 0.5 m³/ha/yr, sourced from national data (Asia-Pacific Forestry Sector Outlook Study II India Outlook Study 2020)[7]. This project applied a wood density value of 0.564 T/m³ to convert it into tonnes per hectare per year, as documented in their registered ER sheet. Screen shot from registered ER sheet of VCS 3151 is shown here for the reference: MAI MAI (forest) 0.5 m3/ha/yr Source: http://moef.gov.in/wp-content/up Thus, the wood density values used by PP (0.645 T/m³ for forests and 0.644 T/m³ for trees outside forests) are conservative compared to those used in other projects. Additionally, PP included the consideration of MAI_{other}, which was not considered in the other referenced projects, further enhancing the conservativeness of our fNRB calculation. **VVB response:** 1. VVB has checked and confirmed that the referred GS registered projects have used the same value i. e. 0.5 m³/ha/year but have not conducted its conversion into tonnes/ha/yr before using for the calculations. This is evident as the registered project documentation does not provide/mention this conversion before using the value for fNRB calculation. Thus, approach by PP for MAI value is appropriate however, since these GS registered projects are with incorrect results, same are now being removed from the assessment to avoid confusion.	

[6] https://registry.verra.org/app/projectDetail/VCS/3151

[7] The document in the provided link is no more accessible now but a pdf file is being submitted for the same along with the responses to the PRR.

		2. As mentioned in the above response, the value used by GS project for MAI is found incorrect. Further, PP has now detailed the mode of calculation for this project which is more conservative than the other registered VCS projects thus found more apporpaite and accepted. **Verra response** **The** GS registered projects have used the same value i. e. 0.5 m^3/ha/year but have not conducted its conversion into tonnes/ha/yr before using for the calculations. This finding is now closed, and no further response is required.	

4	**Monitoring Survey**		
	Issue According to the VCS joint PD/MR (page #5), the monitoring survey for the first monitoring period of the parameters $N_{y,i,j}$ and $B_{y=1,new,i,j,survey}$ was conducted between 10 April 2023 to 25 April 2023 With this timing, it is not explained how it was determined that the ICS distributed between 25 April 2023 to 30 April 2023 were functional, and how they were considered for the monitoring. Action Required The VVB shall confirm how they have assessed the appropriateness and validity of the outcome of this monitoring survey conducted before the end of the monitoring period. Program Rule(s) *VCS Validation and Verification Report Template, v4.2*, Section 4.1	**Round 1** PP Response 44,648 Nos. of ICS were distributed between the 05-December--2022 to 03-March-2023. Since the monitoring survey was carried out between 10 April 2023 and 25 April 2023 therefore there was no issue in assessing the operation of any ICS distributed under the project activity as all the ICSs were distributed prior to the monitoring survey. VVB Response VVB is in receipt of monitoring survey/project database/end user forms for the ICS distributed. The same was referred and checked by the team. The database confirmed no ICS were distributed between the period 25-April-2023 to 30-April- 2023 and thus monitoring survey conducted accounted for all the ICS distributed. Verra Response (Pending) This finding is now closed, and no further response is required.	closed

5	**Anomalies in database**		
	Issue The review team observed several anomalies in the database. 1. There are several stoves for which the name and address of beneficiaries is same.	**Round** PP Response 1) PP acknowledges the observation raised by the registry regarding potential anomalies in the beneficiary database.	closed

Cook Stove Serial Number	Beneficiary Name	House num/ward num/Gali	Village	PO/tehsil/Block	District
GHG-23/L4/0072905	RAJKUMAR	52	MOHGAON	mohgoan	MANDLA
GHG-23/L3/0720898	RAJKUMAR	52	MOHGAON	mohgoan	MANDLA
GHG-22/L3/0575399	CHITA	OSADA	OSADA	PATI	BARWANI
GHG-22/L3/0576123	CHITA	OSADA	OSADA	PATI	BARWANI

2. A number of entries were identified where the beneficiary name did not appear to make sense.

Cook Stove Serial Number	Beneficiary Name
GHG-22/L2/0616381	SAUDI
GHG-23/L3/0676179	NANI
GHG-23/L3/0676410	OKSYA
GHG-23/L2/0695556	CHASING
GHG-23/L3/0676262	LAYA

Action Required

1) The VVB must explain how with multiple entries seeming to belong to same beneficiary in the database, they were able to verify the unique identification of individual stoves implemented under the project activity specifically when PP has stated in section 3.2 under methodology applicability criteria that “Each ICS in this project will be identified by a unique combination of customer name and geographical location, as well as a serial number.”
2) The VVB must also ensure that PP submits copies of agreements signed between PP and end user for all stove entries where the beneficiary's name appears not to make sense as a cross check.

Upon thorough review, PP identified that the confusion primarily arose because only the beneficiaries' first names were initially recorded, leading to apparent duplications.

To enhance clarity and ensure accurate identification, PP has updated the database to include both the first and last names of all beneficiaries. This updated database has been submitted to the VVB for verification.

PP reconfirms that each entry in the database represents a unique beneficiary. It is important to note that in rural Indian communities, it is common for multiple individuals to share identical names, even within the same village. To address this, PP has meticulously verified each beneficiary's identity through their Carbon Credit Ownership Agreement. For additional assurance, PP has shared beneficiary agreements on a random basis, particularly for those beneficiaries with identical names from the same village or tehsil, to facilitate cross-verification.

Furthermore, due to the lack of standardized addressing systems in many rural Indian villages, where house numbers are often absent from official government IDs, PP has decided to remove the House Number column from the database. PP found that this column is not consistently verifiable and did not contribute to the accurate identification of beneficiaries.

PP's updated database now provides a more precise and verifiable record of the project's implementation, ensuring the uniqueness and accuracy of each stove's identification as per the project’s methodology applicability criteria.

2) The mentioned beneficiary names are crosschecked with their Carbon Credit Ownership Agreement (of the individual

beneficiaries) and the names are now corrected where necessary. Basically these names were misspelled inadvertatntly. To ensure their identity, the Project Participant (PP) has submitted copies of the agreements signed between the PP and the end users.

Cookstove serial No.	Benificiery Name		Remark
	Previous	Corrected	
GHG-22/L22/0616381	SAUDI	SAYADI	Spelling mistake
GHG-23/L3/0676179	NANI	NANI	Correct
GHG-23/L3/0676410	OKSYA	OKASYAA	Spelling mistake
GHG-23/L2/0695556	CHASING	CHENSING	Spelling mistake
GHG-23/L3/0676262	LAYA	LAYABAI	Shorten

VVB Response:

1. VVB has found that approach by PP regarding clarity on the names provided clarity about observed double entries for names and address of the beneficiaries.

   The revised database was checked to confirm that to avoid such confusion, first and last names of the beneficieries are added and will be practiced by PP. Moreover, based on regional expertise, VVB can confirm that there is a possibility of having more than one person with same first and last name but this can be further cross checked through their unqiue government IDs and beneficiency agreements. Such random checkes were conducted by VVB and it was noted that no double entries were recorded in the database.

   Regaing address anamoly, VVB based on regional experience can confirm that not all the villages in India has

		specific/designated house nos. leading to confusion to a 3rd party. To avoid such confusion, PP has now deleted the column which is found acceptabl however, geographical locations of the end users along with beneficienry agreemetns/government ID will still can identify each ICS. 2. PP has submitted copies of beneficinery agreements for the mentioned end users. It was noted that, the end user names were mis-spelled. The names of the such end users is now corrected in the database which is checked and confirmed. Verra response The project ICS database has been updated and submitted to Verra for review and clarified that most names were misspelled and these have been corrected. VVB based on regional experience has confirmed that not all the villages in India has specific/designated house nos. leading to confusion to a 3rd party. Copies of beneficiary agreements for the mentioned end-users have been provided and reviewed by the VVB. This finding is now closed, and no further response is required.	

Estimation of Fraction of Non-Renewable Biomass (fNRB)

The process of determining the non-renewable fraction of woody biomass aligns with the guidelines outlined in Tool 30. This estimation hinges on evaluating the proportion of biomass consumed that has not been extracted or harvested sustainably. Notably, the consumption of fuel wood *(Bošković, Chakravorty, Pelli, & Risch, January 2023)* serves as a primary driver of deforestation in India, a consequence of unsustainable extraction and harvesting practices.

The decision to consider subnational or state boundaries for fNRB estimation is rooted in the demarcation of forest boundaries by the Government of India. This delineation serves the dual purpose of regulation and conservation of forested areas. Additionally, several justifications bolster the argument for utilizing subnational boundaries in fNRB estimation:

1. Ecological conditions vary significantly at the subnational level in India, resulting in differences in the mean-annual growth of wood biomass within and outside forested areas. This discrepancy translates into variations in the sustainable extraction potential of woody biomass across defined geographical regions. This difference is further emphasized by variations in the availability of land area under forest cover and for trees outside of forests across states, impacting the potential to sustainably extract wood to meet local demand.

2. While "forest" is included in the Concurrent list of the Indian Constitution, its delineation and boundary definition occur at the subnational level. Regulatory provisions under the Forest Conservation Act 1980 and Forest Conservation Rules 2003, which permit wood harvesting, are overseen

by State Forest Departments. This framework does not allow for cross-boundary wood extraction or harvest, further supporting the use of state boundaries for supply provision estimation.

3. The regulatory provisions outlined in "The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006" enable the collection of Non-Timber Forest Products (NTFP), including firewood, exclusively for traditional forest dwellers. This restricts forest rights to local communities and does not provide for cross-boundary collection.

4. Given that a substantial portion of the woody biomass used as fuel wood, particularly in villages and peri-urban areas, is locally collected, the state or subnational boundary is the most relevant for estimating both fuel wood demand and supply.

Furthermore, in accordance with para 6 (b) of Tool 30, the selection of the project area is permitted, allowing for the consideration of state boundaries in the calculation of fNRB.

Summary of Considerations for Subnational Boundary Use:

- Ecological conditions vary, impacting sustainable biomass extraction.
- "Forest" delineation and regulation occur at the subnational level.
- Regulatory provisions restrict cross-boundary wood extraction.
- Rights for NTFP collection are localized.
- Localized collection of fuel wood is predominant.

Thus, in line with Tool 30, state boundaries are a suitable consideration for fNRB calculation.

Comparison with Scientific Literature

The calculation of fNRB involves establishing the ratio between the quantity of non-renewable biomass (NRB) consumed within the applicable area and the total quantity of both non-renewable biomass (NRB) and renewable biomass (RB). As defined by the tool, NRB is determined as the difference between the total consumption of woody biomass (H) and the quantity of renewable biomass.

In accordance with paragraph 6 of Tool 30, this section undertakes a comparative analysis of the calculated fNRB values against those reported in pertinent scientific literature, providing justifications for any disparities.

1. **Total Wood Consumption**

   a) The entire premise of fNRB centers around the unsustainable extraction and harvest of wood for both fuel and commercial applications. The relevant scientific literature (Bailis, Drigo, & Ghilardi, 2015), referenced in Tool 30, estimates fNRB, or rather NRB (as denoted in the report), based solely on wood fuel demand, with 2009 as the base year. According to Equation 3 of Tool 30, the total wood demand encompasses the average consumption of wood fuel per household, encompassing fuel wood and charcoal, along with commercial woody biomass consumption for energy and non-energy applications. This differs from the literature, which considers only the demand for wood fuel. Since the estimate of fNRB is directly linked to the quantity of wood consumed, this exclusive focus on wood fuel may potentially result in a lower fNRB value in the literature compared to the estimates made for the purpose of GHG emission avoidance.

The table below provides data on wood consumption in MP based on secondary sources...

Consumer type	Quantity	Cumulative Consumption	Percentage of total consumption
Domestic	13.67 million tonnes	13.67 million Tonnes[8]	83%
Commercial Wood Consumption	1.149 million tonnes	1.78 million Tonnes[9]	10%

Based on the example from Madhya Pradesh provided above, it is evident that approximately 10% of wood consumption has not been accounted for in the scientific literature (Bailis, Drigo, & Ghilardi, 2015). This omission has resulted in a lower calculated value for fNRB.

b) The total consumption of woody biomass, for example, in the state of Madhya Pradesh, is conservatively derived from a report published by MoEF&CC (Ministry of Environment, Forest and Climate Change, Government of India) in 2011 (MoEF&CC, 2011). This data is more recent compared to that utilized in the referenced literature (which was based on 2009 data extracted from wood fuel demand available from national and sub-national studies, supplemented by data from the Food and Agriculture Organization (FAO), International Energy Agency (IEA), and United Nations (UN)). Given that the publication of wood demand by MoEF&CC aligns with the provisions outlined in Data/Parameter table 1 of Tool 30, it is considered appropriate to incorporate this information.

c) Furthermore, a cross-verification process was conducted to assess the wood fuel demand, which accounts for 83% of the cumulative wood demand, in the state of Madhya Pradesh. This was done using an alternative approach as specified in Equation 3 of Tool 30. The estimated value of fuel wood demand[10] provided by MoEF&CC for the state of Madhya Pradesh was found to be more conservative and was therefore utilized in the estimation of the total consumption of woody biomass.

Parameters	Value	Unit	Source	
Total Population	72626809	Nos.	Census 2011	https://censusindia.gov.in/census.website/data/census-tables
Rural Population	52557404	Nos.	Census 2011	https://censusindia.gov.in/census.website/data/census-tables
Total Household	15093256	Nos.	Census 2011	https://censusindia.gov.in/census.website/data/census-tables
Rural Household	11080278	Nos.	Census 2011	https://censusindia.gov.in/census.website/data/census-tables
Persons/household (Rural)	4.74	Nos.	Calculated as the ratio of Rural Population and Rural Household	
Rural Household using firewood	93.8%	Percentage	NSS Report No. 558: Household Consumption of Various Goods and Services in India, 2011-12	https://www.mospi.gov.in/sites/default/files/publication_reports/Report_no558_rou68_30june14.pdf

[8] https://fsi.nic.in/cover_2011/chapter7.pdf

[9] https://fsi.nic.in/cover_2011/chapter7.pdf

[10] Against wood fuel demand specified in the MoEF&CC report

Parameters	Value	Unit	Source	
Default per capita firewood usage	0.4	ton/ capita	Tools for f_{NRB} calculation	
Default per capita firewood usage	0.4	ton/ capita	Tools for f_{NRB} calculation	
Rural Household firewood usage	1.897	tonne/ annum		
Total Firewood usage (rural)	19.72	million tonnes		
Total Firewood usage	**19.72**	**million tonnes**		

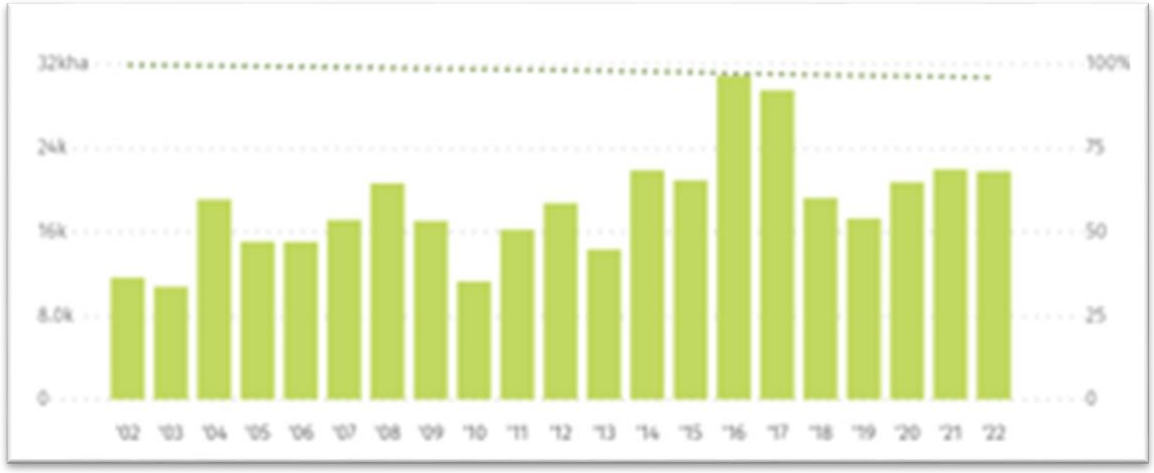
Therefore, from the above information, it can be deduced that the wood consumption considered for the estimation of fNRB is more recent, conservative, and authenticated, as it is published by the Government of India's authorized agency.

2. **Renewable Biomass**

According to Paragraph 19 and Equation 4 of Tool 30, renewable biomass (RB) available in the applicable area is estimated as a factor of the annual increment of woody biomass in both forest and non-forest areas. The renewable biomass component, as estimated under the project activity, takes into account plantation across both forested and non-forested areas, as published by MoEF&CC in 2021, and the mean annual increment of different Indian forest types published at the national level. In contrast, the renewable biomass component estimated in the referenced literature is based on satellite images of specific locations during 2009.

The quantity of renewable biomass available in a particular geography is influenced by deforestation. The status of deforestation in India, as outlined below through a review of secondary literature, contradicts the literature referenced (Bailis, Drigo, & Ghilardi, 2015), which emphasizes afforestation efforts in state forests in India.
According to Global Forest Watch[11], India lost 393 thousand hectares of humid primary forest during 2002-2022, accounting for 18% of its total tree cover loss in the same period. This is equivalent to a decrease in the total area of humid primary forest in India by 3.9%. The year-wise deforestation is illustrated in the figure below.

[11] https://www.globalforestwatch.org/dashboards/country/IND/?category=undefined



This deforestation also encompasses the loss of 2.19 million hectares of tree cover, equivalent to a 5.6% decrease in tree cover since 2000. The deforestation in the country is further confirmed by a report published by "Down to Earth"[12], which outlines a deforestation of 668,400 hectares between 2015 and 2020, making India the second-highest country in terms of deforestation after Brazil[13]. This level of deforestation is significantly higher when compared to the loss of 384,000 hectares of forests between 1990 and 2000.

3. **Difference in AGB**

In the referred literature, Above Ground Biomass (AGB) is the pivotal component for estimating Renewable Biomass. It is crucial to highlight the disparity between the statistics presented in the referred literature and the nationally published data:

Referred Literature	India State of forest Report 2021[14]
15067 million tones	2319 million tonnes

As Renewable Biomass (RB) is inversely proportional to the estimate of fraction of Non-Renewable Biomass (fNRB), a higher RB value results in a lower fNRB, as illustrated in the referred literature.

4. **Approach for Estimating fNRB**

[12] https://www.downtoearth.org.in/news/wildlife-biodiversity/india-lost-668-400-ha-forests-in-5-years-2nd-highest-globally-report-88337

[13] https://indiacsr.in/india-has-lost-around-668400-hectares-of-forestry-to-deforestation-2nd-highest-in-the-world/

[14] Referrer: "Bibliography"

According to the referred literature, recent maps of land cover and ecological zones undergo an assignment of an Above Ground Biomass (AGB) stock. This process utilizes three distinct sources:

i. AGB distribution maps

ii. Geo-referenced field plots

iii. Forest inventories from known locations for specific forest types, where AGB distribution is derived from different datasets.

To account for discrepancies in the datasets, components of woody biomass that are not typically used for wood fuels, such as twigs, leaves, and stumps, are subtracted. This action aids in constructing a map of "Dendro-energy" biomass (DEB) stock. The supply of wood fuel is then estimated based on the "mean annual increment" (MAI) of DEB. This estimation is modelled through a functional relationship established from approximately 2,800 spatially explicit field observations of MAI and corresponding AGB.
Changes in land cover are accommodated by estimating the amount of DEB produced through deforestation and afforestation processes. This estimation is based on data from the Food and Agriculture Organization (FAO) and utilizes information from Forest Monitoring for Action (FORMA). While this approach has undergone peer review, it deviates from the guidelines outlined in paragraph 19, which provides the methodology for estimating the quantity of renewable biomass.

Comparison of Calculated fNRB Values with values published in different registries

In addition to the preceding explanation, it is worth noting that there are references available for calculated fNRB values. For example, the fNRB value calculated for Myanmar came into effect on the CDM website on 23 December 2020[15] and will remain valid until 25th December 2025. This fNRB value has been calculated in accordance with TOOL 30 standard. It is discernible that the actual fNRB value (61.5%) exhibit a significant variance, notably higher, from the one (9.8%) presented in the reference literature (Bailis, R.; Drigo, R.; Ghilardi, A. & Masera, O. (2015)). The carbon footprint of traditional wood fuels. Nature Climate Change, 5(3), pp. 266–272)[16], as mentioned in paragraph 6. (b) (i) of TOOL 30.

Country	Calculated f_{NRB} Values following TOOL 30 CDM registry	f_{NRB} Value from Literature[17]
Myanmar[18]	61.5%	9.8%

Furthermore, there are additional references available for fNRB values documented in other reputable registries, which demonstrate that the actual fNRB values exhibit a significant variance, notably higher, from those presented in the reference literature (Bailis, R.; Drigo, R.; Ghilardi, A. & Masera, O. (2015)), as mentioned in paragraph 6. (b) (i) of TOOL 30.

[15] https://cdm.unfccc.int/methodologies/standard_base/2015/sb160.html

[16] https://www.nature.com/articles/nclimate2491

[17] https://www.nature.com/articles/nclimate2491

[18] https://cdm.unfccc.int/methodologies/standard_base/2015/sb122.html

Country	Calculated f_{NRB} Values available in GS registry[19]	f_{NRB} Value from Literature[20]
Bolivia	82.59%	32.5%
Colombia	83.08%	34.6%
Guatemala	62.74%	34.9%

All these disparities are noteworthy and strongly suggest the incomparability of the values mentioned in the reference literature (Bailis, R.; Drigo, R.; Ghilardi, A. & Masera, O. (2015)) with the values calculated by the project activity in line with TOOL 30.

Comparison of the calculated fNRB value with other projects registered under VERRA

Given the absence of other publicly available literature outlining the value of fNRB for the different states of India, a comparison has been made with the fNRB values under which ICS projects are registered with VERRA in the table below.

Project Reference	Geographic Area	f_{NRB}
Project ID- 2533 Project Title-Improved Cookstove Programme by SDG13 in India	Madhya Pradesh	0.901
Project ID- 2473 Project Title - Installation of High Efficient Cook Stoves by Enking International	Madhya Pradesh	0.931

The above comparison of the fNRB for the current project with other registered project activities distinctly demonstrates that the considered values are conservative in nature.

Conclusion

In summary, the preceding rationale firmly establishes the credibility of the fNRB estimate, harmonizing seamlessly with the principles elucidated in Tool 30. Our methodology rigorously adheres to the guidance provided in paragraph 10 of Tool 30, emphasizing the imperative use of the most recent historical data for ex ante fNRB computations. Moreover, the observed variance in fNRB values between reputable registries and those outlined in the reference literature (Bailis, R.; Drigo, R.; Ghilardi, A. & Masera, O. (2015)) renders direct comparisons untenable.

Upon comparison with other registered project activities, our current project's fNRB appears notably conservative. The unregulated and unmonitored collection of biomass by households leads to a discernible decline in the overall carbon pool. This decline is primarily attributed to the absence of effective management and oversight in the collection process, culminating in a gradual reduction of both biomass and carbon stocks over time. In the absence of adequate measures to facilitate tree regrowth, this practice introduces a perturbation to the carbon balance within the environment. Consequently, if a localized assessment of the fraction of non-renewable biomass could have been conducted, it would suggest that this value may potentially approach 100%, further emphasizing the substantial impact of this practice on the carbon ecosystem.

[19] https://www.goldstandard.org/sites/default/files/documents/fnrb_assessment_final_clean.docx

[20] https://www.nature.com/articles/nclimate2491

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MoEFCC. (2011). *India State of Forest Report.* https://fsi.nic.in/cover_2011/chapter7.pdf.

State wise AGB[21](Source: Chapter 13, State of Forest Report 2021, by the Forest Survey of India, an organisation under the Ministry of Environment, Forest and Climate Change (MoEF&CC), Govt of India)

State/UT	AGB (million Tonnes)
Andhra Pradesh	63.951
Arunachal	340.351
Assam	87.07
Bihar	14.743
Chhattisgarh	152.714
Delhi	0.263
Goa	8.863
Gujrat	28.602
Haryana	2.326
Himachal Pradesh	114.269
Jharkhand	51.017
Karnataka	122.741
Kerala	61.802
Madhya Pradesh	171.587
Maharashtra	137.831
Manipur	47.59
Meghalaya	55.241
Mizoram	48.157
Nagaland	39.339
Odisha	131.015
Punjab	3.42
Rajasthan	26.714
Sikkim	18.024
Tamil Nadu	60.459

[21] Above Ground Biomass

State/UT	AGB (million Tonnes)
Telangana	44.413
Tripura	24.349
UP	32.543
Uttarakhand	159.674
WB	45.365
Andaman	47.56
Chandigarh	0.047
Dadra NH	0.558
J&K	163.897
Ladakh	13.293
Lakshadweep	0.046
Puducherry	0.076
	2319.91